



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,845	08/25/2003	Ive Bracke	920522-94719	3712
23644	7590	01/26/2007	EXAMINER	
BARNES & THORNBURG LLP			PRABHAKHER, PRITHAM DAVID	
P.O. BOX 2786			ART UNIT	PAPER NUMBER
CHICAGO, IL 60690-2786			2622	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/26/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)
	10/647,845	BRACKE, IVE
	Examiner Pritham Prabhakher	Art Unit 2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 25 August 2003.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-37 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-29 and 32-37 is/are rejected.
 7) Claim(s) 30 and 31 is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 25 August 2003 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date _____

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____
 5) Notice of Informal Patent Application
 6) Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-29 and 32-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Palovuori (US Pub No.: 2004/0233276A1) and further in view of Songer (US Patent No.: 5844619).

In regard to Claim 1, Palovuori teaches of an imaging system (The imaging system includes not only the projectors and displays screen, but also the shutter glasses G, Figure 1) for multiple view imaging comprising at least a first and second video processing device, each of the at least first and second video processing devices being for displaying a video image on one or more display devices (L and R represent video processing devices used for displaying a video image (IM) on a display screen S, See Figure 1),

each video processing device receiving at least a first sequence of image frames comprising at least a second sequence of image frames and a third sequence of image frames (Stereo video signal SS (first sequence) is separated into image signals SR (second sequence) and SL (third sequence), Paragraph 0037), the at least second and third sequences of image frames being for generating at least first and second video

streams, respectively (SR and SL are used to produce image signals for the right and left eye respectively, Paragraph 0037), and

each video processing device outputting a fourth sequence of image frames, the fourth sequences of image frames being for generating at least one of the at least first or second video streams (An image (fourth sequence) is projected from the right and left projectors. The image (fourth sequence) is made up of the right (first) and left (second) image signals (video streams), Paragraph 0037).

wherein the imaging system (The imaging system includes not only the projectors and displays screen, but also the shutter glasses G, Figure 1) is adapted to utilize a linking signal for synchronising images displayed by at least one of the at least the first and second video processing devices (first and second projectors R and L) on the display device (S) (The decoder C sends a linking signal SG to synchronize the operation of the shutter glasses for the reproduction (display) of successive images from the projectors, Paragraph 0037).

However, Palovuori does not teach of the fourth sequence of image frames from the first and second video processing devices being asynchronous (projected at a different field rate) with respect to the first sequence of video frames. Songer teaches of a video projection system (Column 1, Line 23 of Songer) that increases the scan rate at the output, Column 5, Lines 29-37 of Songer. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate into the teachings of Palovuori an increase in the rate of the output of an image compared to the input

*because this reduces flicker in the image thus providing an improved picture, **Column 5, Lines 16 et seq. of Songer.***

*With regard to **Claim 2**, Palovuori and Songer disclose an imaging system according to claim 1 wherein the fourth sequence comprises at least a fifth sequence of multiple view display image frames and a sixth sequence of multiple view display image frames, the at least fifth and sixth sequences of image frames being for generating the at least first and second video streams, respectively (The image IM (fourth sequence) is made up of a left image signal (fifth sequence generating first video stream) and right image signal (sixth sequence generating second video stream), **Paragraph 0037 and Figure 1 of Palovuori**).*

*Regarding **Claim 3**, Palovuori and Songer disclose an imaging system according to claim 1, wherein the at least first and second video images are sequenced frame-wise when displayed to form a multiple view image (Figure 1 of Palovuori shows that the images from the Left and Right projectors are sequenced to form a multiple-view (from Left and Right perspective) image IM).*

*In regard to **Claim 4**, Palovuori and Songer disclose an imaging system according to claim 1, wherein the fourth sequence comprising, at least, the fifth and sixth sequences is a single video output signal with video frames containing multiple fields (left and right image signals) (The image IM (fourth sequence) is made up of a left image signal (fifth sequence generating first video stream) and right image signal (sixth sequence generating second video stream), **Paragraph 0037 and Figure 1 of Palovuori**).*

Regarding Claim 5, Palovuori and Songer disclose an imaging system according to claim 1, wherein the linking signal is an additional signal to those signals required to display the, at least, first or second video images per se (Looking at Figure 1 of Palovuori, it is clear that the linking signal SG is separate from the signals SL and SR that are required to display the first and second video images).

*In regard to Claim 6, Palovuori and Songer disclose an imaging system according to claim 1, wherein each video-processing device (Projectors L and R) receives furthermore an input control signal (Palovuori teaches that an input control signal SG is generated separately for each projector, **Paragraph 0048 of Palovuori**). Although not specifically mentioned, it is inherent that the input control signal would correspond to an input rate (frequency of video signals SR and SL, **Paragraph 0044 of Palovuori**) and phase of the, at least, second and third sequences of image frames, because this would be necessary to combine the signals from SR and SL for display.*

*With regard to Claim 7, Palovuori and Songer disclose an imaging system according to claim 1, wherein the linking signal is a signal that is generated externally to the video processing devices (**Figure 1** of Palovuori shows that the decoder C which generates the control signal SG is located externally from the video processing devices).*

In regard to Claim 8, Palovuori and Songer disclose an imaging system according to claim 1, wherein the linking signal is a signal that is generated internally in one of the video processing devices. It is inherent that there is a linking signal present

inside the video processing devices (projectors) to synchronize and combine the left and right images from the L and R projectors.

*In regard to **Claim 9**, Palovuori and Songer disclose an imaging system according to claim 1, furthermore comprising at least one image source (**Paragraph 0007 of Palovuori** teaches that there is at least one image source present).*

*Regarding **Claim 10**, Palovuori and Songer disclose an imaging system according to claim 9, there being at least two image sources of different types (The stereo image recorded to be presented to the projectors are recorded by special cameras with two objective lenses (two image sources of different types), **Paragraph 0007**).*

*In regard to **Claim 11**, Palovuori and Songer disclose an imaging system according to claim 1, adapted to process the first sequence of input image frames and having means for field rate converting the first sequence (Songer discloses doubling the field rate of the image input (first sequence) in order to eliminate flicker, **Column 5, Lines 35-37 of Songer**).*

*With regard to **Claim 12**, Palovuori and Songer disclose an imaging system according to claim 1, wherein the, at least, second (SR) or third sequence (SL) is processed in frame sets (The left image frame set would be processed separately from the right image frame set, **Figure 1 of Palovuori**).*

*In regard to **Claim 13**, Palovuori and Songer disclose an imaging system according to claim 2, wherein the imaging system is adapted to generate an output*

*control signal for an image modulation device allowing the image modulation device to properly synchronize with the output rate and phase of the, at least, fifth and sixth sequences (The decoder C sends a linking/control signal SG to synchronize the operation of the shutter glasses G (image modulation device) for the reproduction (display) of successive images (fifth (left) and sixth (right) sequences from the projectors, **Paragraph 0037 of Palovuori**).*

*With regard to **Claim 14**, Palovuori and Songer disclose an imaging system according to claim 13, wherein the image modulation device is any of active glasses with a synchronization system in **Paragraphs 0023 and 0037 of Palovuori**.*

*In regard to **Claim 15**, Palovuori and Songer disclose an imaging system according to claim 13, wherein the output control signal is functionally compatible with the linking signal (The output control signal and linking signal are one in the same in that they are both used to synchronize the operation of the shutter glasses therefore synchronizing the projection of images intended for the right and left eye, **Paragraphs 0023 and 0037 of Palovuori**).*

*With regard to **Claim 16**, Palovuori and Songer disclose an imaging system according to claim 6, wherein the input control signal is provided by means of a separate signal (Palovuori teaches that an input control signal SG is generated separately for each projector, **Paragraph 0048 of Palovuori**).*

*In regard to **Claim 17**, Palovuori and Songer disclose an imaging system according to claim 1, wherein the first sequence comprising, at least, second and third sequences is a single video input signal (SS) with video frames containing multiple*

fields (*The single video input signal contains multiple (two) fields of video frames. One video frame is for the left projector and one for the right projector, Figure 1 of Palovuori*).

*Regarding Claim 18, Palovuori and Songer disclose an imaging system according to claim 11, adapted to reduce latency between a pair of image frames of the first sequence of image frames (input images) and a subsequent output of a corresponding pair of image frames of the fourth sequence (output image) by starting the output of a first multiple view display image frame of the pair of display image frames (right and left image frames) of the fourth sequence (output image IM) before arrival of the complete pair of image frames of the first sequence of image frames (input images for R and L) when it is known that the completion of the arrival will occur before the expected completion of the output of the first multiple view display image frame of the fourth sequence (**Songer** teaches that vertical and horizontal scan rates are doubled by the vertical-and horizontal synchronized clock doubler 77. Each field is then read twice to give the impression of all four fields being displayed simultaneously, **Column 12, Lines 6 et seq. of Songer**).*

*With regard to **Claim 19**, Palovuori and Songer disclose an imaging system according to claim 1, comprising splitting means for splitting the first sequence of image frames into the second sequence and the third sequence (**Figure 1 of Palovuori** shows that the first sequence of image frames (SS) is split into the second (SR) and third sequence (SL) by using the decoder C, **Paragraph 0037 of Palovuori**).*

*In regard to **Claim 20**, Palovuori and Songer disclose an imaging system according to claim 19, furthermore comprising processing means for processing any of the second sequence or third sequence (The second sequence (SR) or the third sequence (SL) can be combined (processed) into one video image, **Paragraph 0044 of Palovuori**).*

*Regarding **Claim 21**, Palovuori and Songer disclose an imaging system according to claim 19, furthermore comprising a combining means for combining the second sequence and the third sequence into one combined stream of image frames (The second sequence (SR) or the third sequence (SL) can be combined (processed) into one video image, **Paragraph 0044 of Palovuori**).*

*In regard to **Claim 22**, Palovuori and Songer disclose an imaging system according to claim 1, wherein the at least two video processing devices are front projectors (**See Figure 1 of Palovuori**).*

*With regard to **Claim 23**, Palovuori and Songer disclose the use of an imaging system according to claim 1, wherein the video processing devices create a single large image by tiling the at least two video processing devices (Image IM in **Figure 1 of Palovuori**).*

*In regard to **Claim 24**, Palovuori teaches of a method for performing multiple view imaging by means of at least a first and a second video processing devices, each of the at least first and second video processing devices being for displaying a video image on one or more display devices (L and R represent video processing devices used for displaying a video image (IM) on a display screen S, **See Figure 1**), the method comprising:*

*receiving at least a first sequence of image frames comprising at least a second sequence of image frames and a third sequence of image frames (Stereo video signal SS (first sequence) is separated into image signals SR (second sequence) and SL (third sequence), **Paragraph 0037**), the at least second and third sequences of images frames being for generating at least first and second video images, respectively (SR and SL are used to produce image signals for the right and left eye respectively, **Paragraph 0037**), and*

*outputting at least a fourth sequence of image frames, the at least fourth sequences of image frames being for generating at least one of the first and second video images (An image (fourth sequence) is projected from the right and left projectors. The image (fourth sequence) is made up of the right (first) and left (second) image signals (video streams), **Paragraph 0037**),*

the method comprising generating a linking signal for synchronizing images displayed by the at least one of the first and second video processing devices (first and second projectors R and L) on the display device (S) (The decoder C sends a linking

signal SG to synchronize the operation of the shutter glasses for the reproduction (display) of successive images from the projectors, Paragraph 0037).

However, Palovuori does not teach of a method where the fourth sequence of image frames from the first and second video processing devices is asynchronous (projected at a different field rate) with respect to the first sequence of video frames.

*Songer teaches of a video projection system (**Column 1, Line 23 of Songer**) that increases the scan rate at the output, **Column 5, Lines 29-37 of Songer**. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate into the teachings of Palovuori an increase in the rate of the output of an image compared to the input because this reduces flicker in the image thus providing an improved picture, **Column 5, Lines 16 et seq. of Songer**.*

*With regard to **Claim 25**, Palovuori and Songer disclose a method according to claim 24, wherein generating the linking signal comprises generating the linking signal externally to the video processing devices (**Figure 1** of Palovuori shows that the decoder C which generates the control signal SG is located externally from the video processing devices).*

*In regard to **Claim 26**, Palovuori and Songer disclose a method according to claim 24, wherein generating the linking signal comprises generating the linking signal internally in one of the video processing devices. It is inherent that there is a linking signal present inside the video processing devices (projectors) to synchronize and combine the left and right images from the L and R projectors.*

Regarding Claim 27, Palovuori and Songer disclose a method according to claim 24, furthermore comprising providing images from at least one image source (Paragraph 0007 of Palovuori teaches that there is at least one image source present).

With regard to Claim 28, Palovuori and Songer disclose a method according to claim 27, wherein the images are provided from at least two image sources of different type (The stereo image recorded to be presented to the projectors are recorded by special cameras with two objective lenses (two image sources of different types), Paragraph 0007).

In regard to Claim 29, Palovuori and Songer disclose a method according to claim 24, comprising processing the first sequence of image frames in pairs (left and right images) for the purpose of field rate conversion (Songer discloses processing. The reference discusses doubling the field rate of the image input (first sequence) in order to eliminate flicker, Column 5, Lines 35-37 of Songer).

Regarding Claim 32, Palovuori and Songer disclose a method according to claim 24, furthermore comprising generating a control signal for an image modulation device (shutter glasses G) allowing the image modulation device to properly synchronize with an output rate and phase of the fourth sequence of image frames (The decoder C sends a linking/control signal SG to synchronize the operation of the shutter glasses G (image modulation device) for the reproduction (display) of successive images (fifth (left) and sixth (right) sequences from the projectors, Paragraph 0037 of Palovuori).

*In regard to **Claim 33**, Palovuori and Songer disclose a method according to claim 29, wherein the processing of image frames of the first sequence is optimized to reduce latency between a pair of image frames of the first sequence (input images) and a subsequent output of a corresponding pair of image frames of the fourth sequence (output image IM) by starting the output of a first multiple view display image frame of the fourth sequence before arrival of the complete pair of image frames of the first sequence of image frames when it is known that the completion of the arrival will occur before the expected completion of the output of the first multiple view display image frame of the fourth sequence (**Songer** teaches that vertical and horizontal scan rates are doubled by the vertical-and horizontal synchronized clock doubler 77. Each field is then read twice to give the impression of all four fields being displayed simultaneously, **Column 12, Lines 6 et seq. of Songer**).*

*With regard to **Claim 34**, Palovuori and Songer disclose a method according to claim 24, comprising splitting the first sequence of image frames into the second sequence intended to be viewed by a first eye and the third sequence intended to be viewed by a second eye of a human person (**Figure 1 of Palovuori** shows that the first sequence of image frames (SS) is split into the second (SR for right eye) and third sequence (SL for the left eye) by using the decoder C, **Paragraph 0037 of Palovuori**).*

*Regarding **Claim 35**, Palovuori and Songer disclose a method according to claim 34, furthermore comprising processing any of the second sequence or third sequence (The second sequence (SR) or the third sequence (SL) can be combined (processed) into one video image, **Paragraph 0044 of Palovuori**).*

*In regard to **Claim 36**, Palovuori and Songer disclose a method according to claim 34, furthermore comprising combining the second sequence and the third sequence into one combined stream of image frames (The second sequence (SR) or the third sequence (SL) can be combined (processed) into one video image, **Paragraph 0044 of Palovuori**).*

*With regard to **Claim 37**, it corresponds to the apparatus and method **claims 1 and 24** and is therefore analyzed and rejected the same as previously discussed with respect to apparatus claim 1. Also, it is inherent that a controller is present to control the operation of the first and second video processing devices in the imaging system of claim 1.*

Allowable Subject Matter

Claims 30 and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pritham Prabhakher whose telephone number is 571-270-1128. The examiner can normally be reached on M-F (7:30-5:00) Alt Friday's Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571)272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Pritham David Prabhakher
Patent Examiner
Pritham.Prabhakher@uspto.gov

Pritham D. Prabhakher

[Signature]
TUAN HO
PRIMARY EXAMINER